

REMARKS

This Amendment is filed in response to the Office Action dated August 11, 2005, which has a shortened statutory period set to expire November 11, 2005.

Drawings

The Office Action states that a drawing must be submitted to illustrate "the looping and compiling instructions". Applicant assumes that the Office Action refers to the limitations "looping instructions" and "compilation instructions" recited in Claim 14. Claim 14 is cancelled, thereby rendering the requirement of a drawing submission moot.

Rejections Under 35 U.S.C. 112

Claims 1-6 and 9-14 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to point out and particularly claim the subject matter of the invention. Claim 14 is cancelled, rendering the rejection of that claim moot. Applicants respectfully traverse the rejection of Claims 1-6 and 9-13 in view of the foregoing amendments and the following remarks.

The Office Action states that the phrase "the engineering design of variations" recited by Claims 1 and 11 is "unclear". Claim 1 is amended to clarify the reading of the cited limitations. Specifically, Claim 1, as amended, recites in part:

[C]onducting a sensitivity analysis on the engineering design to determine a set of performance factors, **wherein each performance factor defines an effect, on a set of metrics for the engineering design, of variations in a selected design variable** over a range of values, while holding the set of design variables, except for the selected design variable, at the baseline set of design values[.] (Emphasis added.)

No new matter is added, as the amendment to Claim 1 merely involves grammatical changes to the original language. Thus, as is clear from amended Claim 1, the phrase "the engineering design of variations" cited by the Office Action is not a single phrase that describes a claim limitation, but instead refers to two different limitations (i.e., "a set of metrics for the engineering design" and "variations in a selected design variable"). Similar clarifying grammatical amendments are applied to Claims 9 and 11 to eliminate any possible confusion.

The Office Action further states that with respect to the phrase "the test one of the one or more design variables" as recited in Claim 6, "it is not clear what a test one of the design variables is." Claim 6 is amended to recite in part:

[S]electing one of the one or more design variables;
performing a set of simulations on the engineering design using the baseline set of design values and varying the one of the one or more design variables over the simulation range for the one of the one or more design variables to generate a test set of values for the set of metrics;

generating a set of test results for the one of the one or more design variables by associating the test set of values with the simulation range for the test one of the one or more design variables; [and]

repeating the steps of selecting the one of the one or more design variables, performing the set of simulations, and generating the set of test results for each of the one or more design variables.

This amendment is purely a clarifying amendment that removes the descriptor "test" from the phrase "test one of the one or more design variables", thereby eliminating any possibility of confusion regarding the phrase.

In light of the above-described amendments to Claims 1, 6, 9, and 11, Applicants respectfully request reconsideration and withdrawal of the rejections of Claims 1-6 and 9-13 under 35 U.S.C. 112, second paragraph.

Claims 6 and 14 stand rejected under 35 U.S.C. 112, first paragraph as failing to comply with the written description requirement. Specifically, the Office Action states that "Claims 6 and 14 include specific claim language requiring looping instruction and compilation instruction that are not shown or described in the specification." Claim 14 is cancelled, rendering the rejection of that claim moot. Applicants respectfully traverse the rejection of Claim 6.

Applicants assume that the rejection of Claim 6 under 35 U.S.C. 112, first paragraph is based on the language of "repeating the steps of ..." and "compiling the set of test results ..." recited by Claim 6. Applicants respectfully submit that such "repeating ... and compiling" as recited by Claim 6 is fully described in the specification as originally filed.

For example, FIGS. 1, 2, and 3 all include a "Sequentially Sweep over Variables" step (S153 in FIG. 1, S102 in FIG. 2, and S203 in FIG. 3). As described in the specification as originally filed, such a step involves **"for each design variable, sweep[ing] across the possible values** of the design variable while holding the other design variables constant ... [and] **at each point in the sweep simulate and record the metrics"**. (Specification as originally filed, paragraph 28, emphasis added.) This "sweep across the possible values" "for each design variable" certainly describes "repeating the steps of selecting the one of the one or more design variables, performing the set of simulations, and generating the set of test results for each of the one or more design variables" as recited by Claim 6, and "record[ing] the metrics" can likewise describe "compiling the set of test results" as recited by Claim 6. Thus, the limitations of Claim 6 are fully described in the specification as originally filed.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of Claim 6 under 35 U.S.C. 112, first paragraph.

Rejections Under 35 U.S.C. 102

Claims 1-6 and 9-14 stand rejected under 35 U.S.C. 102(e) as being anticipated by Chatterjee. Claim 14 is cancelled, rendering the rejection of that claim moot. Applicants respectfully traverse the rejections of Claim 1-6 and 9-13.

Claim 1, as amended, recites in part:

[C]onducting a sensitivity analysis on the engineering design to determine a set of performance factors, wherein each performance factor defines an effect, on a set of metrics for the engineering design, of variations in a selected design variable over a range of values, while holding the set of design variables, except for the selected design variable, at the baseline set of design values[.] (Emphasis added.)

"[C]onducting a sensitivity analysis ... while holding the set of design variables, except for the selected design variable, at the baseline set of design values" as recited in Claim 1 beneficially:

allows the designer to gain insight into the problem domain by enabling the designer to visualize the metric dependencies on any design variable ... [and] allows the designer to visualize the tradeoffs of multiple metrics through a design variable and allows the identification of the design variables which are important in the modification of a specified metric." (Specification as originally filed, paragraph 23.)

The Office Action states that "conducting a sensitivity analysis" as recited by Claim 1 is taught by Chatterjee "especially [at] col. 9, lines 55-65 showing that ... only one value is computed for each parameter (design value) at a time, by keeping others constant." Applicants respectfully submit that this is an incorrect reading of Chatterjee.

The cited portion of Chatterjee specifically states:

When ambiguity groups exist, the matrix inverse $(J(p_i))^{-1}$ required in Equation 13 cannot be directly computed. Therefore, **one device parameter from each ambiguity group, is kept a constant** and the corresponding column is removed from $J(p_i)$ so that the matrix inverse required for Equation 13 can be computed. Since **one parameter from each ambiguity group is kept a constant during each iteration**, only one of the infinitely many possible solutions for each of the device parameter values is computed, in case ambiguity groups exist. (Chatterjee, col. 9, lines 54-63, emphasis added.)

Thus, even assuming, arguendo, that the "device parameter" and "ambiguity group" recited by Chatterjee can correspond to the "design variable" and "set of design variables" recited by Claim 1, Chatterjee still does not teach "conducting a sensitivity analysis ... while holding the set of design variables, except for the selected design variable, at the baseline set of design values" (emphasis added) as recited by Claim 1. In fact, Chatterjee actually teaches away from such an approach by describing a process in which **"one parameter from each ambiguity group is kept a constant during each iteration"**. (Chatterjee, col. 9, lines 59-61, emphasis added.)

For at least this reason, Claim 1 is allowable under 35 U.S.C. 102(e) over Chatterjee. Claims 2-6 depend from Claim 1, and are therefore allowable over Chatterjee for at least the same reasons that Claim 1 is allowable. Accordingly, Applicants respectfully request reconsideration and allowance of Claims 1-6.

Claim 9, as amended, recites in part:

[C]omputing means for **performing a sensitivity analysis** on the engineering design to determine a set of performance factors, **wherein each performance factor defines an effect**, on metrics for the engineering design, **of variations in a selected design variable over a range of values, while holding the set of design variables, except**

for the selected design variable, at the baseline set of design values[.] (Emphasis added.)

Thus, for substantially the same reasons as described above with respect to Claim 1, Claim 9 is allowable under 35 U.S.C. 102(e) over Chatterjee. Claim 10 depends from Claim 9, and is therefore allowable over Chatterjee for at least the same reason that Claim 9 is allowable. Accordingly, Applicants respectfully request reconsideration and allowance of Claims 9-10.

Claim 11, as amended, recites in part:

[I]nstructions for causing the computing system to **perform a sensitivity analysis** on the engineering design to determine a set of performance factors, **wherein each performance factor defines an effect**, on a set of metrics for the engineering design, **of variations in a selected design variable over a range of values, while holding the set of design variables, except for the selected design variable, at the baseline set of design values[.]**
(Emphasis added.)

Thus, for substantially the same reasons as described above with respect to Claim 1, Claim 11 is allowable under 35 U.S.C. 102(e) over Chatterjee. Claims 12-13 depend from Claim 11, and are therefore allowable over Chatterjee for at least the same reason that Claim 11 is allowable. Accordingly, Applicants respectfully request reconsideration and allowance of Claims 11-13.

CONCLUSION

Claims 1-6 and 9-13 are pending in the present Application. Reconsideration and allowance of these claims is respectfully requested.

If there are any questions, please telephone the undersigned at (408) 451-5903 to expedite prosecution of this case.

Respectfully submitted,



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I hereby certify that this correspondence is being deposited with the United States Postal Service as FIRST CLASS MAIL in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on November 10, 2005.

11/10/2005 Rebecca A. Baumann
Date Signature: Rebecca A. Baumann